Topic Name	States of Matter
Big Question	Where does a puddle go?
Scientists to use as examples	Lord Kelvin Joseph Priestly Anders Celsius Daniel Fahrenheit
Key Knowledge	• compare and group materials together, according to whether they are solids, liquids or gases • observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature Pupils should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container). Pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled. Note: teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning.
Key investigational skills	Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting. Q & A sessions at the beginning and end of each topic and relevant to each session of teaching. Big Questions displayed. Setting up tests for ascertaining melting points. Observing tests for melting points – use thermometers to carefully note the temperatures of melting chocolate. Evaporation experiments. Gas measuring experiment.

	Water cycle diagrams. Bar charts/tables for temperature work. Setting point results for the gas weight experiment. Write up results of experiments. Class working walls and displays – add to over time Consider Topic questions – what could we do next Considering the changes caused by heating and cooling. Responses to Q & A Sessions. Completing end of topic quiz.
Vocabulary	solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle
Prior learning – what children should know	Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) • Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Future learning – next time they will be learning	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials) • Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. (Y5 - Properties and changes of materials) • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. (Y5 - Properties and changes of materials) • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. (Y5 - Properties and changes of materials) • Demonstrate that dissolving, mixing and changes of state are reversible changes. (Y5 - Properties and changes of materials) • Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes

	associated with burning and the action of acid on bicarbonate of soda. (Y5
Visits	Visit to the Beach Nature area for pond/puddles
Book links	The Mystery of the Melting Snowman- Florence Paddy Heide